

**Study Objective:** To describe the route of hysterectomy in a county hospital and evaluate the shift towards a minimal invasive approach.

**Design:** Retrospective cohort study.

**Setting:** A county hospital in Norway.

**Patients:** All women scheduled for hysterectomy.

**Intervention:** Audit the route of hysterectomy in the period 2004 - 2012. Analyze the outcome of total laparoscopic hysterectomies.

**Measurements and Main Results:** Main outcome measures: Complications after total laparoscopic hysterectomy.

**Results:** A shift towards a minimal invasive approach has been achieved during the study period. In 2012 only 17.4 % of the hysterectomies were performed abdominally, compared to yearly percentages of above 50 % in the period 2004 - 2009. Laparoscopic supracervical hysterectomy was introduced in 2003 but the percentage of abdominal hysterectomy remained above 50 % until total laparoscopic hysterectomy was introduced in 2010. Since the introduction of total laparoscopic hysterectomy in April 2010, 58 procedures have been performed. There have been no major complications. Two vaginal vault hematomas were reported and one case of urinary tract infection.

**Conclusion:** It is possible for a county hospital to alter their praxis and perform mini invasive hysterectomies, but it requires dedicated gynecologists. This change to an advanced procedure like total laparoscopic hysterectomy could be achieved without patients suffering from major complications.

### 350 Open Communications 18—Advanced Endoscopy (9:12 AM — 9:17 AM)

#### Validation of the Generic Error Rating Tool (GERT) in Gynecologic Laparoscopy (Preliminary Data)

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**Study Objective:** Until now proposed methodologies for error analysis have been complex and variable and therefore lacked widespread implementation. Our lack of an objective scoring system for detailed formative feedback reduces our ability to evaluate progress of surgical skills. Recently a promising generic error rating tool (GERT) has been developed and validated in laparoscopic Roux-en-Y gastric bypasses. The aim of this study is to validate this tool in gynecologic laparoscopic surgery.

**Design:** Retrospective video analysis.

**Setting:** University teaching hospital.

**Patients:** Videos unedited, total laparoscopic hysterectomies.

**Intervention:** Anonimized videos of TLHs performed by staff surgeons or trainees were rated by two independent blinded observers using GERT. The tool consists of 9 error groups (access, retractors, energy, grasping/dissection, cutting, clipping, suturing, suction and other). The groups are further subdivided in error-execution-modes including inadequate force, orientation or visualisation. Time of error execution and resulting events (i.e. bleeding, tissue damage) were recorded. The videos were rated also using a global rating scale (OSATS).

**Measurements and Main Results:** Five procedures were rated. Interrater reliability was high for total number of errors (ICC 0.99), event rate (ICC 0.97) and OSATS scores (ICC 0.99). The mean total error score was 32.8 (SD 1.8) for high performers (OSATS > 27) and 75.8 (SD 1.8) for low performers (OSATS ≤ 27), (p = 0.000, two sided t-test). The mean event rate per procedure was 1.2 (SD 1.3). Most frequently errors were observed in the error groups grasping/dissection and suturing.

**Conclusion:** In this preliminary analysis, GERT was easy to use and yielded high interrater reliability despite the low number of procedures reviewed to this point. GERT seems to be a promising tool for error analysis in gynecologic laparoscopies. This tool could be used for formative feedback in surgical education and may enhance the understanding of error-mechanisms that lead to adverse events.

### 351 Open Communications 18—Advanced Endoscopy (9:18 AM — 9:23 AM)

#### Office Diagnostic and Operative Hysteroscopy Using Local Anesthesia Only: An Analysis of Patient Reported Pain and Other Procedural Outcomes

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**Study Objective:** To evaluate the effectiveness of a local anesthetic protocol for both diagnostic and operative hysteroscopy in the office setting.

**Design:** Retrospective cohort study using a prospectively collected database.

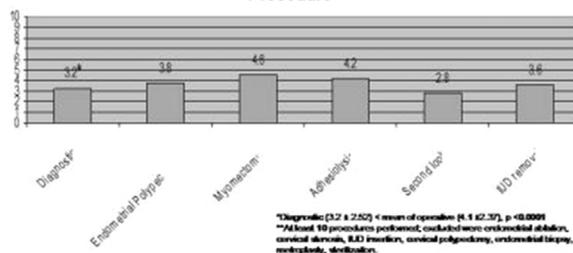
**Setting:** Department of Obstetrics and Gynecology at Kaiser Permanente, Los Angeles Medical Center, an academic community based institution.

**Patients:** 642 consecutive women undergoing either diagnostic or operative hysteroscopic procedures in an office-based Uterine Imaging and Procedure Center (UPIC) from July 19, 2005 to October 23, 2012.

**Measurements and Main Results:** The anesthetic protocol included a paracervical block using 0.5% lidocaine with 1/200,000 adrenaline and a combination of topical vaginal, intracervical, and intracavitary lidocaine. Aside from oral COX inhibitors, no other systemic agents were used. Patients reported the peak pain experienced using a 0-10 numeric scale. Resource utilization was determined by comparing institutional procedure costs with those in the UPIC.

534 patients were available for pain analysis; 108 were excluded due to missing pain data. There were 8 procedural failures in 642 cases due to failed uterine access or patient discomfort. Aside from 3 vasovagal reactions, there were no complications or admissions to hospital. The overall mean pain score across all procedures was  $3.7 \pm 2.47$ . Patients undergoing operative hysteroscopy had a higher mean maximum pain score than those who had a diagnostic hysteroscopy only ( $4.1$  vs  $3.2$  p < 0.0001).

Mean Hysteroscopy Numeric Pain Score: By Procedure\*\*



There was no difference among women in different age groups but those with at least one vaginal delivery had scores higher than the mean ( $4.6 \pm 2.54$ , p=0.03). The estimated cost savings to the health plan of the 642 patients were approximately 3 million dollars.

**Conclusion:** Using a multimodality approach to local anesthesia, a broad spectrum of diagnostic and operative procedures can be performed successfully, comfortably and inexpensively in the context of an office procedure room, without the need for procedural sedation.

### 352 Open Communications 18—Advanced Endoscopy (9:24 AM — 9:29 AM)

#### Digital Operating Room with Video over IP

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**Study Objective:** Endoscopic surgery is technically challenging considering slow implementation. We therefore reviewed whether the digital operating room with integration of devices and information would be helpful in training or in improving quality and safety of surgery.

**Design:** Review of data.

**Measurements and Main Results:** Little evidence supports the numerous claims.

Dedicated operating theaters with no cables, with separate screens for surgeon and assistant, with display of stored images and data from devices is claimed to facilitate organization of the OR, to facilitate surgery and to reduce fatigue and complications. Although this seems supported by widespread clinical experience data are not available. Short delay in visualization is important for surgery although not documented.

Visualization of structures by fluorescence is emerging technology. Similarly algorithms enhancing vascularization might be useful for diagnosis of endometriosis. What is lacking is real time integration into our images, i.e. enhanced reality.

Live surgery is claimed to be important for teaching and learning. Video registration is a great tool for teaching and for debriefing. Video registration of entire interventions is claimed to be useful since review would facilitate diagnosis and treatment of complications, while being useful medico legally. Also the usefulness of 3D is claimed.

Intelligent navigation is useful in neurosurgery and orthopedics

**Comments:** The lack of solid data is less surprising when realizing that the evidence supporting HD video is scanty. Innovation in surgery occurs at the interface between surgical demands and technical feasibility. Since it is unclear where we should go next, we will review briefly new developments in operating room integration especially video over IP.

**Conclusion:** Surgeons should take interest in technical limitations and possibilities in order to help steer innovation. Validation of new developments and claims remain of prime importance.

### 353 Open Communications 18—Advanced Endoscopy (9:30 AM — 9:35 AM)

#### Adenomyosis, Endometrioma and Deep Infiltrating Endometriosis Their Mutual Prevalence and Symptoms Correlation

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**Study Objective:** To investigate the association of the three different most common localizations of endometriosis adenomyosis, endometrioma (OMA), deep infiltrating endometriosis (DIE) and the possible changes in symptoms.

**Design:** Retrospective, multicenter study.

**Setting:** University hospital.

**Patients:** 116 women who underwent laparoscopic treatment for DIE.

**Intervention:** Clinical history and ultrasound evaluations were always performed for the preoperative assessment of the patients within 3 months before surgery. According with previous studies, we determined the presence of all the ultrasonographic appearances of endometriosis and its localization. In particular all the described US signs of adenomyosis were recorded. Furthermore the following clinical signs and symptoms were considered: infertility, dysmenorrhea, metrorrhagia, deep dyspareunia, functional bowel signs such as constipation, diarrhea, painful defecation during menses and rectal bleeding, functional urinary tract signs. The level of patient's discomfort and pain was evaluated by the VAS (Visual Analogic Scale) system.

**Measurements and Main Results:** The prevalence of adenomyosis and OMA on DIE patients was found in 22.4% (n=26). Adenomyosis was prevalent in 56% (n=65). Only OMA were detected in 39.6% (n=46) of patients with DIE. DIE alone was detected in 26.7% (n=31). These ultrasonographic data were confirmed at the time of surgical treatment. Adenomyosis was confirmed through a core biopsy ultrasonographically guided.

**Conclusion:** The presence of adenomyosis in association with OMA and/or DIE can significantly modify many of the clinical aspects of endometriosis. Following our data we can suggest that an accurate ultrasonographic diagnosis can give more informations to the patient and overall can determine a different and more comprehensive management of this pathology.

### 354 Open Communications 18—Advanced Endoscopy (9:36 AM — 9:41 AM)

#### Single Port Access (SPA) Laparoscopic Temporary Clipping of Uterine Artery during SPA Laparoscopic Myomectomy: Initial Experience

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**Study Objective:** To present our initial experience with single port access (SPA) laparoscopic temporary clipping of uterine arteries during SPA laparoscopic myomectomy (LM).

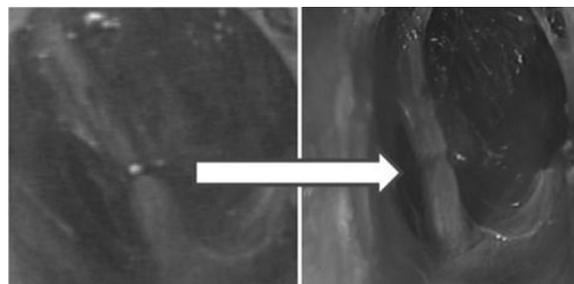
**Design:** Continuing, prospective study (Canadian Task Force classification II-3).

**Setting:** University teaching, research hospital and a tertiary center.

**Patients:** We performed the SPA-LM with temporary clipping of both uterine arteries in 7 patients from January 1, 2013 to April 30, 2013.

**Intervention:** All cases of SPA-LM with temporary clipping of both uterine arteries were performed by a single surgeon.

**Measurements and Main Results:** We analyzed the data to determine the outcomes of the SPA-LM with temporary clipping of both uterine arteries. A total of 7 consecutive patients have undergone the SPA-LM with temporary clipping of both uterine arteries, for benign uterine fibroids regardless of the BMI or previous abdominal or pelvic surgery. There was no case of placing additional trocars during the surgery. The median age and pre-operative size of uterine fibroids on transvaginal sonography were 33 years (25-42) and 6.9 cm (4.3-12.0). During the surgery, the median operation time and estimated blood loss were 156 min (122-220) and 150 ml (100-550). The median value of Hb drop after surgery on day 1 and hospital stay were 2.3 g/dl (0.3-3.8) and 3 days (2-5). During the procedure there were no case of uterine artery occlusion or rupture and patients are doing well postoperatively.



**Conclusion:** The SPA-LM with temporary clipping of both uterine arteries was safe and feasible.

### 355 Open Communications 18—Advanced Endoscopy (9:42 AM — 9:47 AM)

#### Ligation of Uterine Vessels in Total Laparoscopic Hysterectomy Using Hem-o-lok Clip

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**Study Objective:** The Hem-o-lok clip has become the preferred method for vessel ligation. We evaluated the feasibility and safety of uterine vessel ligation using the Hem-o-lok clip during total laparoscopic hysterectomy.

**Design:** Based on routine clinical practise.

**Setting:** Retrospective medical chart review.

**Patients:** Patient who were surgically candidate for total laparoscopic hysterectomy.

**Intervention:** Identification and dissect the uterine vessels and ligation using Hem-o-lok clip.

**Measurements and Main Results:** Of 29 patients, bilateral application of Hem-o-lok clips was completed in 25 patients (86%); unilateral use of bipolar coagulator was needed in 4 patients for rapid control of bleeding from lacerated uterine vessels during dissection and/or because of anatomical difficulty. No complications, such as dislodgement, slippage,